

FARM ENERGY EFFICIENCY OPPORTUNITIES



ABOUT TMP

- **TMP founded in 1978-79 by Citizen Mark Dayton.**

▶
**Dayton's U.S.
Senate run in
1982 (he lost to
Senator Dave
Durenberger)**



ABOUT TMP

- **TMP long-held focus on rural development and economic sustainability – project oriented, NOT politics**

OLD PEPSI CAN WAITING TO BE RECYCLED ►



- **Examples:**
 - **Rural recycling initiatives**
 - **Wind Energy Toolkit**
 - **Biomass and Anaerobic Digester Projects**
 - **REAP Technical Assistance**

OPPORTUNITIES FOR UTILITY COLLABORATION

- 1. FARM ENERGY AUDITOR
TRAINING**
- 2. LED POULTRY LIGHTING
PILOT PROJECT**
- 3. DAIRY PRODUCER COOP
ENERGY EFFICIENCY**

FARM ENERGY AUDITOR TRAINING

- **Funded as an “Innovative Energy Strategy” through ARRA (The Stimulus Package)**
- **Coordinated by DER – CIP**
- **Currently in Week 6 of second class.**
 - **28 grads total by May 2013**

FARM ENERGY AUDITOR TRAINING

- **INSTRUCTED BY GDS ASSOCIATES CEMs
and PEs**
- **Eight webinars**
 - **Minimizes student travel**
- **3 on-farm site visits**
- **1 final report (final exam)**



GDS Associates, Inc.
Engineers and Consultants

FARM ENERGY AUDITOR TRAINING

- **Eight webinar categories**
 - 1. Dairy*****
 - 2. Beef**
 - 3. Swine**
 - 4. Poultry*****
 - 5. Grain drying**
 - 6. Greenhouse*****
 - 7. Grocery/Convenience Store**
 - 8. Grant writing and landscape auditing**

AUDITOR TRAINING – UTILITY COLLABORATION

- **RURAL ELECTRIC CO-OP GRADUATES:**
 - **Connexus Energy (Ramsey, MN) - 2**
 - **Renville-Sibley Power Coop**
 - **McLeod Coop Power**
 - **Dakota Electric Association**
 - **South-Central Electric Association**
 - **People's Energy Cooperative (current)**
 - **MN Valley Coop Light & Power (current)**

- **HOPING FOR MORE INTEREST**

the
**MINNESOTA
PROJECT**

working for strong local economies,
vibrant communities, and a healthy environment



1ST SITE VISIT - HOWE HOLSTEINS - 2013

- SOUTH OF HUTCHINSON
- 70-COW MILK HERD. LAST ENERGY UPDATES IN EARLY 1980s
- GREAT FARM OVERALL. COULD USE SOME EFFICIENCY UPGRADES, BUT IN GOOD SHAPE.

The MINNESOTA PROJECT

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FIRST SITE VISIT - HOWE HOLSTEINS

- CURRENT STUDENTS JOTTING DOWN EQUIPMENT INFO
- BLUE BOX IS AN OLDER ROTARY VANE VACUUM PUMP
 - IDENTIFIED UPGRADE, DEPENDS ON ROI

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2nd SITE VISIT – LAKEWOOD TURKEY

- NEAR EDEN VALLEY/PAYNESVILLE
- PICTURE OF THE BROODER BARN (TWO FINISHER BARNS ALSO)
- PRODUCES ABOUT 40,000 TURKEYS PER FLOCK

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2nd SITE VISIT – LAKEWOOD TURKEY

- INSIDE THE FINISHER BARN WITH 17,000 TURKEYS
- TEMPERATURE IS KEPT AT 70-75 DEGREES FOR FINISHING BIRDS
- CEILING INSULATION WAS FALLING DOWN, BUT PRODUCER HAD LITTLE INCENTIVE TO FIX IT – PROCESSOR PAID THE PROPANE COST

FARM ENERGY AUDITOR TRAINING

GOAL:

- **BUILD CAPACITY**

HELP UTILITIES IDENTIFY ENERGY SAVINGS PROJECTS WHERE FARMER HAS FINANCIAL INCENTIVE TO IMPROVE AND UTILITY CAN CLAIM CONSERVATION IMPROVEMENT CREDIT.

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MOVING ON... LED POULTRY PROJECT



LED POULTRY LIGHTING

- **CONSERVATION – APPLIED
RESEARCH & DEVELOPMENT
(CARD) GRANT FROM...**



LED POULTRY LIGHTING

- **Project partner**
- **Based in Plymouth, MN**
- **LED light manufacturer**



LED POULTRY LIGHTING

AgriShift® PL 12 Watt

**Delivers equivalent of
100W bulb**

**Designed for dusty,
humid barn conditions**



LED POULTRY LIGHTING

- **Minnesota is the biggest turkey producing state in U.S.**
 - **North Carolina is a distant 2ND**

Ballpark figures for MN:

- **46-48 million turkeys per year**
- **14 million egg laying (mostly)**

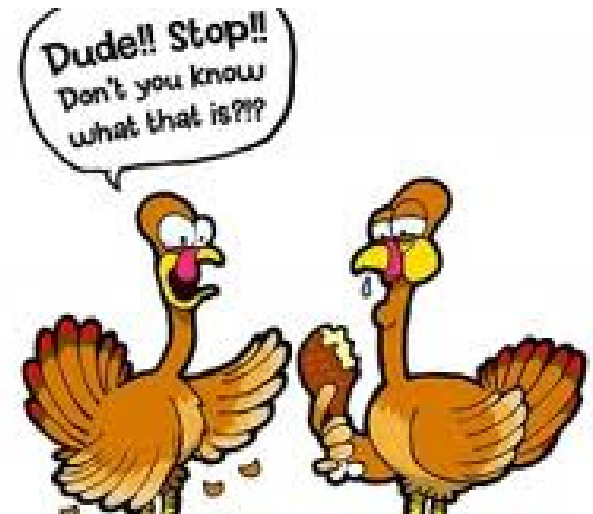
LED POULTRY LIGHTING

COST-SHARE PROGRAM DESIGNED TO MEASURE:

- **ENERGY SAVINGS**
- **PERFORMANCE AND
DURABILITY OF LEDs**
- **POTENTIAL FOR PRODUCTION
INCREASES**

LED POULTRY LIGHTING

- **LIGHTING IS IMPORTANT TO BIRDS**
- **Encourage feed consumption and growth**
- **Balanced lighting avoids clustering and reduces cannibalism**



LED POULTRY LIGHTING

- **WORKING WITH 12 GROWERS**
 - **TURKEY BROOD**
 - **TURKEY FINISH**
 - **CHICKEN EGG-LAYING**

- **LIGHTING PRACTICES RANGE, BUT USUALLY ON 10-15 HRS A DAY – SIGNIFICANT COST**

OPPORTUNITIES FOR UTILITY COLLABORATION

- **PILOT PROJECT DESIGNED TO ENCOURAGE LIGHT EFFICIENCY ADOPTION**
- **TMP OFFERS ANSWERS ON LED (OR SIMILAR) PROJECT PROBLEMS**
- **PROJECTS DEPEND ON KIND AND NUMBER OF PRODUCERS IN YOUR TERRITORY**

DAIRY E.E. THROUGH PRODUCER COOPS

PROJECT PARTNER

**HASTINGS
COOPERATIVE
CREAMERY
COMPANY**

← **Storefront
on Highway 61**



DAIRY E.E. IN PRODUCER COOPS

- **CONSERVATION – APPLIED
RESEARCH & DEVELOPMENT
(CARD) GRANT AGAIN FROM...**



DAIRY E.E. IN PRODUCER COOPS

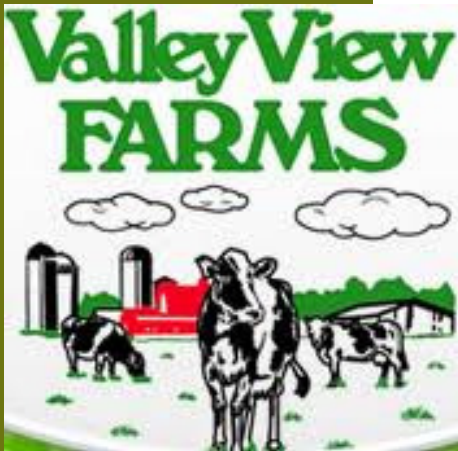
PROGRAM DESIGN:

- **Leverage dairy producer cooperative structure to deliver energy efficiency services**
- **Collaborate with coop leadership, milk haulers, and field officers to work with milk producers**

DAIRY E.E. IN PRODUCER COOPS

STEPS IN BRIEF:

- 1. Administer baseline energy survey across the cooperative (58 MN patrons)**
- 2. Develop and apply a benchmarking tool to identify the inefficient farms**
- 3. Audit inefficient farms with trained farm energy auditors**
- 4. Follow up on farm energy efficiency program application and equipment implementation – utilities and NRCS**



DAIRY E.E. IN PRODUCER COOPS

ADVANTAGES:

SCALABILITY

- **“Branch-tree” strategy is better than one-by-one farm energy auditing**

REPLICABILITY

- **Model is applicable to other growers' associations and cooperatives**

OPPORTUNITIES FOR UTILITY COLLABORATION

- **PROJECT DESIGN**
 - **Best methods to leverage producer coop networks/staff**
- **SURVEYING AND BENCHMARKING**
 - **Identifying inefficient producers and delivering audits**
- **CONNECTING FARMERS TO YOUR REBATE PROGRAMS**

FARM E. E. Resources

www.mnproject.org

- **Click on “energy” for fact sheets and case studies.**

www.farmenergy.exnet.iastate.edu

- **ISU’s farm energy initiative**

www.uwex.edu/energy/AgEnergy.html

- **UW-Madison extension**

THANK YOU

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